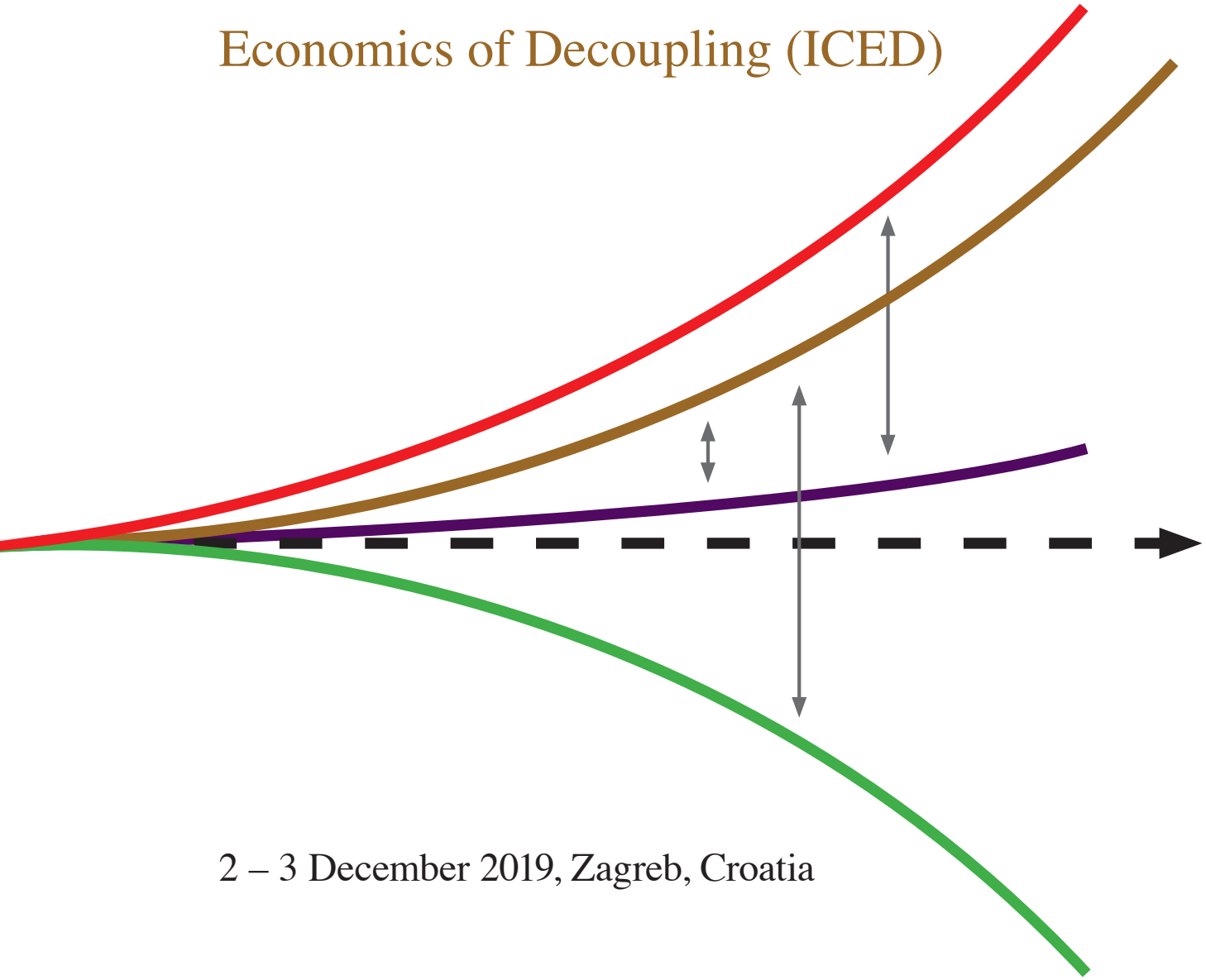
Book of Abstracts

of

International Conference on

Economics of Decoupling (ICED)



2 – 3 December 2019, Zagreb, Croatia

University of Zagreb
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Conference programme

02 December 2019

8:30 – 9:00 Registration

9:00-10:30 (Room 14) Session 1

Session chair: László SZALAI / Branka TUŠKAN

1. *Krešimir IVANDA: "POPULATION DECLINE AND POPULATION AGEING IN CROATIA: THE EFFECT ON ENERGY CONSUMPTION"*
2. *Tsolmon SODNOMDAVAA, Erdenetsogt GURBAZAR, Uyanga GANTUMUR: DETERMINATION AND ANALYSIS OF TRADE POTENTIAL FOR DOMINANT MINING EXPORT COUNTRIES*
3. *László SZALAI: AN EXPERIMENTAL APPROACH TO THE RESOURCE CURSE*
4. *Branka TUŠKAN, Maja MIHELJA ŽAJA: GREEN BONDS: MARKET CHALLENGES FOR INNOVATIVE AND SPECIALISED FINANCING INSTRUMENTS*
5. *Masoud SHIRAZI: A DYNAMIC NETWORK COMPARISON ANALYSIS OF CRUDE OIL INTERNATIONAL TRADE*

10:30-10:45 Coffee break

10:45-12:15 (Room 14) Session 2

Session chair: Tomislav SEKUR

1. *Stjepan NIKOLIĆ, Slavica RUKAVINA, Mladen IŠTUK: GREEN DEAL AND OIL INDUSTRY – TRANSFORMATION TOWARDS LOW CARBON ECONOMY*
2. *Mario SVIGIR: KEYNESIAN PULL OF SUSTAINABILITY POLICIES; THE CASE OF EUROPEAN UNION' DIRECTIVE ON RENEWABLE ENERGY*
3. *Slobodan CVETANOVIĆ, Igor NOVAKOVIĆ: MERCHANDIZING KNOWLEDGE INTO INNOVATION IN THEORY OF ECONOMIC GROWTH AND DEVELOPMENT*
4. *Tomislav SEKUR, Nora MUSTAĆ, Lucija ROGIĆ DUMANČIĆ: CONVERGENCE AND DECOUPLING IN THE EUROPEAN UNION*
5. *Željko BOGDAN, Irena RAGUŽ KRIŠTIĆ: RENEWABLE ENERGY SOURCES, GREENHOUSE GAS EMISSIONS AND ECONOMIC GROWTH IN THE POST-SOCIALIST MEMBERS OF THE EUROPEAN UNION*

12:30-15:00 Lunch (Celebration of the Faculty of Economics Day)

15:00-16:30 (Room 14) Session 3

Session chair: Nika ŠIMURINA

1. *Nika ŠIMURINA, Anita ČEH ČASNI, Hrvoje JELIĆ: INFLUENCE OF ENERGY TAXES ON DEMAND FOR RENEWABLES - PANEL ANALYISIS*
2. *Tihana ŠKRINJARIĆ: EVALUATING SUSTAINABLE DEVELOPMENT AND CIRCULAR ECONOMY GOALS OF SELECTED EUROPEAN COUNTRIES*
3. *Anita ČEH ČASNI, Berislav ŽMUK, Kosjenka DUMANČIĆ: DEFINING AND MEASURING DIGITAL ECONOMY IN CROATIA*
4. *Vatroslav ZOVKO, Mira ZOVKO: DECOUPLING OF ECONOMIC GROWTH FROM NATURAL RESOURCE USE AND ENVIRONMENTAL IMPACTS IN CROATIA*

5. *Gordan DRUŽIĆ, Martina BASARAC SERTIĆ: BIOECONOMY IN THE EUROPEAN UNION AND CROATIA*

16:30-16:45 Coffee break

16:45-18:15 (Room 8) Session 4

Session chair: Forest DAVID

1. *Bogdan Cristian ONETE, Sonia BUDZ: ASPECTS RELATING THE INFLUENCE OF SPIRITUALITY ON CSR IN DIGITAL ORGANIZATIONS*
2. *Forest DAVID: A CONTENT ANALYSIS OF MISSION STATEMENTS AMONG CROATIAN AND HUNGARIAN AGRIBUSINESS FIRMS*
3. *Jerko GLAVAŠ, Bruno MANDIĆ, Niko DUBRAVAC: PERCEPCIJA KREATIVNIH GRADOVA BUDUĆNOSTI / PERCEPTION OF CREATIVE CITIES IN THE FUTURE*
4. *Sanela RAVLIĆ, Mladen JURIŠIĆ, Jerko GLAVAŠ: APPLICATION OF GEOSPATIAL TECHNOLOGIES IN THE ANALYSIS OF THE EFFECTS OF THE IPA CROSS-BORDER CO-OPERATION HUNGARY - CROATIA 2007 -2013*
5. *Marija BEG: GREEN JOBS: PROPOSAL FOR MEASUREMENT IN CROATIA*

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Session chair: Marin STRMOTA

1. *Marin STRMOTA: DEMOGRAPHIC DETERMINANTS OF ENERGY CONSUMPTION IN EU COUNTRIES - Is energy consumption dependent on demographic processes?*
2. *Ivan ŠUŠNJAR: PRICES ASYMMETRY OF CRUDE OIL AND OIL DERIVATIVES*
3. *Davor MATIĆ, Sanja VULAMA: TRENDS IN NATURAL GAS PRICING MODELS SEGMENTATION IN EUROPE AND REPUBLIC OF CROATIA*
4. *Damir VRBIĆ, Dražen RAJKOVIĆ, Saša ĐOZIĆ: FORWARD MARKET SITUATIONS AND THEIR INFLUENCE ON UTILISATION AND PRICES OF CRUDE OIL AND PETROLEUM PRODUCT STORAGE*
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Session chair: Katerina TOSHEVSKA-TRPCHEVSKA / Sanja FRANC

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2. *Dragan ĐURIČIN, Iva HERCEG VUKSANOVIĆ: CIRCULAR ECONOMY RULES*
3. *Sanja FRANC, Maja BAŠIĆ: TRANSFER OF NORMS IN A GLOBAL DIGITAL TRADE FLOWS*
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Session chair: Ljiljana KONTIĆ / Kristina Bučar

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2. *Markus MEDIĆ, Ana ANDABAKA: GREEN BONDS*

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Session chair: Tihomir VRANEŠEVIĆ

1. *Ivo DRUŽIĆ: ECONOMIC GROWTH, SCARCITY OF RESOURCES AND THE CHALLENGE OF THERMODYNAMICS*
2. *Dario ŠEBALJ: CONCEPTUAL MODEL AS A BASIS FOR A SIMULATION MODEL OF NATURAL GAS SUPPLY CHAIN IN A FUNCTION OF COSTS OPTIMIZATION*
3. *Alenka KINDERMAN LONČAREVIĆ, Vlatka KOS GRABAR ROBINA, Branko VUK: DEVELOPMENT OF ECONOMETRIC METHOD FOR EARLY ESTIMATION OF ANNUAL STATISTICAL ENERGY BALANCE*
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ECONOMIC GROWTH, SCARCITY OF RESOURCES AND THE CHALLENGE OF THERMODYNAMICS

Ivo Družić
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Abstract
We are witnessing growing expectation of "unexpected" economic changes, which are, on the one hand, the result of new technologies, demographic and climate change, and on the other, the cause of new dynamics in the organization of human society. The growing unpredictability of developmental outcomes increases the "fear of the future". This opens up a wide communication area in which the criteria for distinguishing "prophetic visions" from real facts, "conspiracy theories" from scientific evidence and "ideologized perceptions" from objective reality have yet to be found. The search for valid criteria, if we are to avoid the saying of the skeptics - "may I have lived in interesting times" - should probably begin with a logical sequencing of questions and answers that make sense of the exciting confusion we are in, and what is otherwise called – life. Without the illusion of a holistic approach, we highlight three specific issues characterized by the multiplicity of acceptable answers;

- the first issue is the stability of economic activity and the possibility of unlimited economic growth,
- the second issue is the need for human labor and productive employment in the face of emerging technologies,
- the third issue is social stability, or to be more exact the distribution of benefits from economic activity and economic growth.

It is no novelty that fascination (almost as much as fear) with new technologies will significantly affect our expectations for the future. The "new" novelty is mostly twofold. First, the full digitalization of communications and the automation /robotization of production and service processes managed by "artificial intelligence", almost "vividly" displaces everyday human work, making it "by the way" "redundant" to secure physical existence, asking the question: "what will people do when they no longer have to work to survive? What will be the motive when there is no "fear of hunger"? Secondly, what will happen to the life span when put in perspective of synthetic biology (artificial life) and 3D printers on the one hand, and on the other nano/pico technology that will allow our cells to be "endlessly" regenerated/restored. What will propel us when we will be able to "live forever"?
New technologies, continuously raise, among other things, the question of the ability of the dominant (neo) classical economic paradigm to scientifically explain and shape new technologies into an effective social organization of economic activity and its growing equilibrium functioning. It has so far "survived" numerous challenges, mainly for two reasons. First, because alternative approaches have generally concentrated on exploring and "demonstrating" the weaknesses of the (neo) classical model, without offering a consistent and complete alternative pattern. Secondly, because part of that critique essentially "helped" its correction, identifying its weaknesses, which could then be "remedied". By turning part of

the critique into "special" cases of the model of general equilibrium, the neoclassical pattern obtained additional consistency and strength of scientific interpretation. The whole "story" has so far functioned on the principle of "second best" solution; "While there is no better, the one we have is good enough."

The alternative, which began to emerge more strongly at the end of the 20th century, is interesting in the attempt to "change the issue" which is a matter of discussion. Bypassing (neo) classic strongholds in utility, marginal cost/yield, supply, and demand, it moves towards its "origin/source". (Neo)classical approach has its stronghold in Newton's laws of mechanical motion according to which "every action causes the same kind of reaction," automatically disrupting and restoring the "universe" to equilibrium. Here, all processes are "reversible" (there is no loss). Equally, the "invisible hand" automatically brings the market back into balance by the interaction of supply and demand. The "new" economy "changes the research question" replacing Newton`s mechanics, with the laws of thermodynamics. Experimentally proven natural movement of physical bodies "from warm to cold" results in the "disorderly" movement of molecules resulting in the loss of energy, making the conclusion that the processes are partly irreversible. The observed entropy "translated" into the world of economics means that there is no automatic return to equilibrium because rapid economic growth results in irreversible loss of resources in the foreseeable time (non-renewable resources). In this setting, many attempts have been made to design alternatives such as; circular economy, bio-economy, green economy, sustainable economy. They have a common opposition to entropy, the "economics of decoupling", that separates economic growth from the growth in the use of non-renewable natural resources. Each alternative differs according to variants/models of entropy reduction, or models of "decoupling economics".

In this paper, we will concentrate on growth problems in the context of a transformed understanding of resource constraints. Mainstream economic theory, or A. Smith's "classical" economy, emerging from Newton`s physics/mechanics, from the very beginning faced many challenges, from Marxism, Keynesianism, Structuralists, Institutionalists, Historical school, to Neo-Ricardians in the mid-20th century.

Among all these challenges, which the classical economy, together with the neo-classic as its "modernized" variant, has more or less successfully "survived", the particularly intriguing are the "neo-Ricardians". Instead of different/new answers to the questions asked, they simply changed the questions. In spite the ignoring "set smile" of the the dominant mainstream economy, the changed pattern of neo-Ricardians, like the "pebble in a shoe" you can't get rid of, is a constant „blister“ to neo-classics.

But this "pebble" is likely to be joined by the „big-size rock" of the "new" economy. It also "changes the issue" by focusing on the growing "negative" externalities, that is, the costs of energy entropy, which by disrupting global ecological balance is endangering the very survival of life on earth. Assuming that classical economics cannot even "see" a pattern that changes economic behavior, the new economy tries to ground itself in the laws of thermodynamics.

In doing so, it is assumed that A. Smith (and his followers) was, in fact, "fascinated" by Newton's law of mechanical motion of the body (for every "action" that drives a body from equilibrium, there is a reaction that restores that body to balance). In Newton's "universe" all

mechanical processes are reversible (inverse) because for every + T there must be –T. Classical economics, not taking into account time, has found a foothold here. Just as the universe, once launched, functions automatically like a well-oiled clock, so does the market. While god is the force that propelled the universe, man's selfishness and "unquenchable" motive for increasing his wellbeing is what drives the market. Just as the laws of gravity rule the universe, so does the "invisible hand" rule the market. Referring to Newton's remark that "every action causes the same reaction," the "classics" claim that the same principle works for the market. Supply and demand are constantly responding to each other, adjusting to one another until they reach equilibrium.

The "new" economy draws attention to the "small" problem of the classical economy. Looking at the real world, we see how energy and raw materials/products are transformed into inputs, transformed into products that are used and then discarded. In the real world, economic activity is largely "irreversible". Once used, the product (mostly) no longer returns to economic activity because there is entropy. And the laws of thermodynamics speak of entropy. This is why the "new" economy starts from the laws of thermodynamics, instead of Newton's laws of "mechanics."

It should be noted that the outcome of the "collision" of the (neo) classical economy and the economy of "decoupling“ is not certain. Lately, there have been loud expert disputes about the meaning and impact of entropy, which may be related to the withdrawal of the United States, the largest energy user and the largest "polluter", from global agreements to reduce greenhouse gas emissions.

This time the "battlefield" is (energy) entropy, so it will be interesting to see how much of its "9 lives" the neoclassical "cat" has used.

Keywords: economic growth, economy, scarcity of resources, thermodynamics, decoupling

JEL classification: B1, B2, O44

KEYNESIAN PULL OF SUSTAINABILITY POLICIES; THE CASE OF EUROPEAN UNION' DIRECTIVE ON RENEWABLE ENERGY

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Abstract:
John Maynard Keynes proposed that aggregate demand policy should be used to counter disturbed market forces in times of their uncontrolled contraction during economic depressions or deflations. One notable condition for effectiveness of such an aggregate demand intervention policy is that state of aggregate supply is relatively elastic enough to demand pulls so that growth is effected and inflation avoided. Hypothesis of this research is that sustainability related policy and spending of public resources can generate build-up or supply of renewable energy generation affecting increase of energy supply and economic growth while mitigating climate change in non-inflation or energy access exclusion manner. Despite the fact that existing body of research provides plenty of arguments going in favour of existence of positive relationship between growth and investment into generation of renewable energy, wider policy nature and context of such policies have not been investigated so far but are vital for design of sustainable transition and policy focused on timely, growth creating and least cost exposing effects. EU Directive of Renewable Energy is tested as such policy intervention context created as EU policy platform enabling rapid and smooth transition towards attainment of higher levels of renewables share in total electricity and thus energy generation. Research has showed that passing of EU renewables directive has increased policy activities leading to increase of the size of renewable share of electricity generation. To be more specific, supply of renewable types of electricity generation went up for 50 % and usage of electricity coming from wind turbines and from solar panels is significant. Likewise, policy induced government spending on activities of R&D in area of exploration and exploitation of the Earth was found strongest correlated to build-up of renewable energy supply according to time series for interval between passing of the 2009 EU renewable directive and 2017 when latest of relevant data have been available. Strong correlations are present between energy and industrial development related R&D government spending and build-up of additional supply of renewable share in electricity generation. Government spending on R&D subjected to enviormental themes is negatively and also less significantly correlated to building of renewable energy supply. Yet overall EU energy balance indicators analysis for the given period gives indication that investment and positive effect of policy on generation of renewable energy is far from being able to tackle existing and expanding of energy deficits of EU member states. Overall relationship between general state of energy supply and demand and developments in department of renewable energy is featured as both negative and insignificant. That calls for more ambitious, robust and timely response of policy for renewable energy generation so that sustainability transition is executed in manner of creating of Keynesian type of larger supply of and demand for renewable electricity generation to meet existing and increasing total supply of and demand

for EU member states' energy in least the environment and economic standard or cost competitiveness exposing fashion supporting economic growth with no inflation along the way.

Keywords: renewable energy, sustainability, Keynesian policy, energy supply and demand

JEL classification: Q01, Q31, Q38, Q41, Q58

MERCHANDIZING KNOWLEDGE INTO INNOVATION IN THEORY OF ECONOMIC GROWTH AND DEVELOPMENT

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Abstract
Theoretical explications of the category of economic development imply the application of research methods that touch not only the economic but also the numerous political, demographic, ethical and environmental dimensions of development. Primarily because of this fact, theoretical explications of economic development can be very imprecise in form and sometimes of a very extensive nature, despite the fact that a descriptive method in the study of particular economic phenomena can significantly replace analytical precision. In any case, logical consistency in qualifying the phenomena characteristic of the theoretical explication of economic development plays an extremely important role and importance. If the content of the theory of economic development is understood in this way, it can also be interpreted as its effort to determine the conditions conducive to achieving a high rate of economic growth over a long period. This is why economic development theorists use a far broader and more diverse analytical ways in their research compared to researchers interested solely in economic growth issues. In addition to standard factors of production (land, labor and capital), neoclassical theory of economic growth also recognized production factors of intangible character in the form of residuals, that is, innovations understood in the broadest sense of the word. This fact can be marked as a key change in economic science related to economic development research. Endogenous growth models in conceptual terms have succeeded in overcoming the stagnant neoclassical economic theory theorem that economic growth, in the absence of knowledge valorized in innovation, is a time-limited process. The key drivers of knowledge in new theories of economic growth and development are endogenous and crucial in the process of creating new value. They account for the manifestation of external effects, that is, they explain the possibility of declining returns on production factors at the aggregate level due to the unlimited possibilities of commercialization of knowledge into innovation.

Keywords: knowledge, innovation, economic growth, economic development, innovation policy, national system of innovation

CONVERGENCE AND DECOUPLING IN THE EUROPEAN UNION

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Abstract
Climate change is a major challenge for modern societies, especially when living in the time of rising production imperative. Climate change already affects national economies and the society itself and will continue to do so since "business as usual" is still playing a great role in the world we live in. This imposes the examination of the correlation between economic growth and energy consumption. Economic growth usually means using more non-renewable resources. Therefore, economic growth was mainly associated with adverse environmental impacts such as exploitation and environmental pollution. However, more recent empirical evidence and data suggest the opposite i.e. that more developed countries use less energy such as oil, natural gas, and coal which means that economic growth can be decoupled or free from adverse environmental impacts. In fact, the economy can grow without using more non-renewable resources and consequent environmental problems. In this way, decoupling means the opposite movement of GDP and consumption of renewable energy. In this article, we explore decoupling in the European Union by calculating the decoupling factor. Besides that, we test the β-convergence hypothesis and run comparative analysis of economic, pollution and decoupling convergence among the EU countries. According to the neoclassical growth theory, poor countries tend to grow faster than rich countries. This idea of convergence can be applied to other fields of (economic) science. Considering that the EU is often spoken of in the context of a two-speed Europe, the aim is to examine how and in which way developed and less developed EU countries relate to "decoupling". Therefore, we grouped the EU countries into three clusters to examine geographical patterns of economic, pollution and decoupling convergence. The convergence analysis and calculation of the decoupling factor will be based on GDP (p.c.) and gas emission (p.c.) data. Our results suggest that the convergence is happening in the EU in terms of economic and polluting catching-up.

Keywords: decoupling, economic growth, convergence, energy consumption, European Union

JEL classification: O10, O13, Q32

DETERMINATION AND ANALYSIS OF TRADE POTENTIAL FOR DOMINANT MINING EXPORT COUNTRIES

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Abstract
The study investigates to define the trade potential of dominant mining export as their economy classifieds lower income, similarly Mongolia. This paper provides a brief critical review of the literature on the widely used gravity model of trade, as an explanation of determination and analysis bilateral trade. To estimate and analyse the determination, gravity model are examined for data of nine countries that world's dominant mining countries which their natural resources are primary driver of economic activity of lower middle income countries: Bolivia, Congo Rep., Kyrgyz Republic, Mongolia, Senegal, Sudan, Uzbekistan, Zambia, Zimbabwe in a panel data set covering over the period 1990-2018. The aim of bilateral trade is the exchange of goods between two nations by two countries' markets to increase their economic growth so the data of chosen countries of this paper measured by the exchange of goods, import, exports of top five countries. The estimating model includes eight endogenous variables; the dependent variable is bilateral trade, and there are seven explanatory variables; distance, GDP and population, four dummy variables; visa, religion, the member of WTO, boundaries by reason of international trade relations among nations became important and countries religion, visa, boundaries, the member of WTO have become more palpable within the global trade. The empirical results are shown as the following. First, visas have negative impact on bilateral trade flows that visas reduce the number of new products exported market. Second, comparing the effect of dummy variables can cause positive effects on bilateral trade potential of all countries. Third, comparing the effects of three variables on bilateral trade, population can cause higher effect than other two variables distance and GDP. Finally, the trade potential is higher than effective trade for some countries such as Mongolia which exporters should adopt new measures to boost and diversify the exporters.

Keywords: Trade, gravity model, export, religion, visa

DECOUPLING OF ECONOMIC GROWTH FROM NATURAL RESOURCE USE AND ENVIRONMENTAL IMPACTS IN CROATIA

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Abstract
Economy of the most countries is driven by paradigm of maximising economic growth, which ultimately depends on natural resources. Nevertheless, available natural resources are limited, especially when more intense worldwide production and consumption were taking into consideration. To evaluate economic growth as an increase in gross domestic product (GDP) and depletion of natural resources or environmental impacts such as extinction of species, pollution and climate change, a decoupling assessment is undertaken. In this paper, decoupling is discussed from the perspective of global drive to continuously increase GDP and the set of Material flow accounts indicators, including the analysis of economy decoupling from most important environmental air pollutants in Croatia. In addition, this paper provide the assessment of the resource productivity in Croatia and EU-28. According to the data presented in this paper, it can be concluded that decoupling of economic growth from the consumption of materials and resource productivity presents a major challenge for Croatia, while decoupling of economic growth from the air emissions has desirable trend of absolute decoupling.
The way natural resources are used and managed has economic, environmental and social consequences that often extend beyond the borders of single countries. Therefore, this integrated economic, resource and environmental analysis of decoupling could be a strong basis for sustainable development management of national, European and global economies and societies.

Key words: decoupling, economic growth, natural resources, environmental impact, material flow accounts, resource productivity, circular economy

JEL classification: O10, O44, P18, Q51

RENEWABLE ENERGY SOURCES, GREENHOUSE GAS EMISSIONS AND ECONOMIC GROWTH IN THE POST-SOCIALIST MEMBERS OF THE EUROPEAN UNION

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Abstract
Sustainable economic growth and environmental protection are one of the most important goals of European Union (EU) economic policy. This inevitably raises the question of whether activities aimed at halting global climate change have a negative impact on economic growth, i.e. whether it is necessary to sacrifice economic growth to achieve the EU's ambitious climate goals. The EU's 20-20-20 agenda aims, among other things, to reduce greenhouse gases by 20% from 1990 levels and to increase the share of renewable energy sources (RES) in total energy consumption to 20%. The new EU member states, all of which are post-socialist EU member states, have been facilitated in achieving the EU climate targets compared to older EU member states, which makes this group of countries particularly interesting for research. The paper therefore examines the impact of renewable energy consumption and carbon dioxide (CO_2) emissions on economic growth in post-socialist EU member states and studies still unexplored specifics of these economies and contributes to the existing literature. The ARDL methodology was applied to the time series of eleven countries from 1990 to 2014. Excluding the Czech Republic, where it is positive for both variables, in most countries the long-term relationship between the observed variables and economic activity is not robust. In the short term, the results suggest a positive link between emissions and economic activity. The impact of renewable energy consumption on economic activity is initially negative (excluding the Slovak Republic) and over time becomes positive in most countries, which is in line with the conclusions on its long-term impact. The results confirm expectations that in the short term, post-socialist countries could use their privileged position in environmental regulation over old member states to increase production. The short-term immediate negative effect of RES can be explained by the initial cost of setting up RES, but is not a concern in the long run.

Keywords: economic growth, renewable energy, greenhouse gas emissions, ARDL, post-socialist EU member states

DEVELOPMENT OF ECONOMETRIC METHOD FOR EARLY ESTIMATION OF ANNUAL STATISTICAL ENERGY BALANCE

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Abstract

Timely, accurate and consistent energy data is baseline evidence for key energy policies and the main energy statistics report is energy balance. It enables assessment of current energy situation in the country, monitoring of the progress towards chosen targets, evaluation of impacts of the energy policies and other.

Energy institute Hrvoje Požar (EIHP) regularly compile and publishes annual energy statistics and its key output - energy balance based on EC Regulation on energy statistics and national Regulation on energy balance. Energy balance is currently regularly compiled at the end of current year Y-0 for the previous calendar year Y-1, what represent delay of 12 months. In 2017, due to the increased demand for more update energy data and based on the EUROSTAT's requirements, the EIHP begun to produce early estimates for part of supply side of energy balance with delay of T+6 months in Y-0 year for Y-1 year. But some users need data even faster, so the EIHP investigates options for additional improvements in timelines of energy balance compilation and produce early estimate even in December of the year Y-0 for Y-0 year without and additional burden on data providers. The starting point for estimation of early energy balances is use of monthly energy statistics which CBS regularly transmit to EUROSTAT based on Annex C of Regulation on energy statistics. Availability of data for 7-10 months out of 12 months in December of the year Y-0 together with knowledge of real events of 11 out of 12 months is examined as enough and sufficiently robust for making accurate estimates.

The model for early estimates which is currently developing by EIHP is based on the use econometric model designed in the way to estimate in the first phase seasonal/monthly energy supply and demand for past period using time series data for period from 5-8 years. If accuracy of achieved estimates is satisfied, then estimation of supply and demand for missing months in year Y-0 is performed. The key drivers in the econometric models are seasonal variables (months in the year), seasonal/monthly value of GDP, outdoor air temperature and other data. Energy flows which are not included in the monthly energy statistics but need to be presented in annual statistical energy balance will be estimated based on annual trends analysis using time series of annual energy statistics. This paper brings the first findings and results of development of early estimates of energy balance and explains econometric

approach that is used for estimating supply of electricity, natural gas and heat to final consumers.

Keywords: early energy balance, **econometric model**

JEL classification: C5, Q4

FORWARD MARKET SITUATIONS AND THEIR INFLUENCE ON UTILISATION AND PRICES OF CRUDE OIL AND PETROLEUM PRODUCT STORAGE

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Abstract
The oil industry is, most probably, the most significant industry of the modern age, while the activities related to the storage of crude oil and petroleum products represent its major segment that contributes to the security of supply and proper functioning of the oil market. For the purposes of the security of supply and stability of the economies of the Western world, the strategic oil reserves have a key role, while the activity related to the crude oil and petroleum product storage for the commercial purposes is an important element of the oil market. The storage of crude oil and petroleum products is a great business in which the traders, refineries, oil producers, financial companies from the Wall Street, independent storage operators and transportation companies try to make money on the trade, storage and changes on the oil market.
The oil market fundamentals, primarily the crude oil supply and demand, influence the development of the crude oil and petroleum product storage, as well as the specific trends of the forward (futures) prices of crude oil, and the market situations respectively in which the oil market is found. There are two fundamental market situations in terms of the expectations of the yield curve movement of the forward prices of certain commodity: contango (when the prices in the future maturities are higher than the spot market price) and backwardation (when the prices in the future maturities are lower than the spot price). In the market situations of contango, the demand for the storage capacities is great and therefore, it is profitable to store the crude oil and to sell it afterwards under higher prices. For the market situation of backwardation, it is the other way round.
A research has been conducted on the sample of several major companies in the world over the last decade with respect to the fact as to what extent the two crucial business performances of the storage operators – utilisation of the storage capacities, on the one hand, and the average unit prices of crude oil and petroleum product storage, on the other hand – have moved in accordance with the expected impacts of two major trends of the oil forward price movement on the global market.

Keywords: storage of crude oil and petroleum products, forward yield curve, storage capacities, contango, backwardation

JEL classification: M3

CONCEPTUAL MODEL AS A BASIS FOR A SIMULATION MODEL OF NATURAL GAS SUPPLY CHAIN IN A FUNCTION OF COSTS OPTIMIZATION

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Abstract
The functioning of the natural gas system in the Republic of Croatia is based on the laws and regulations of the European Union. Consumers are obliged to sign a contract with suppliers, energy companies who purchase gas on their behalf under regulated conditions (gas for households) or at market principles (gas for industry and commercial purposes). Suppliers must predict how much gas will their consumers consume and, accordingly, order certain amount of gas. The gas market in the Republic of Croatia functions on a balancing principle. This means that the total amount of gas injected into the transmission system (quantity ordered by the suppliers) must be withdrawn from it. Since it is not possible to accurately predict future gas consumption, the differences between the ordered (nominated) quantity and the actual amount consumed are being appeared. The system then become imbalanced and the price of its rebalance is paid by the suppliers themselves. The main purpose of this paper is to present the conceptual model as a basis for developing simulation model in order to test a potential technical solution which could be used to compensate prediction errors. Such a solution would be placed at the beginning of the distribution system and it would manage the accumulation of the system. In case there is an excess in the transmission system (since it is more nominated than it is consumed), that surplus would be accumulated in the distribution system. Conversely, if the consumption is higher than the nomination, in the case that a sufficient amount of gas is accumulated in distribution system, the difference would be withdrawn from it. In order to test such a potential solution, the computer simulation of the gas system will be created. It should give us an answer can the activation of the balancing energy occur less frequently and, consequently, reduce the cost to suppliers. But before designing the simulation model, it was necessary to create a conceptual model that represents the gas system after improvements.

Keywords: natural gas, supply chain, transmission system balancing, conceptual model, simulation model

TRENDS IN NATURAL GAS PRICING MODELS SEGMENTATION IN EUROPE AND REPUBLIC OF CROATIA

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Abstract
With the progress of the natural gas market liberalization and an increase in the number of natural gas trading hubs in Europe and with the growth of their liquidity, there is a change in the segmentation of price models. As liquidity of natural gas hubs increases, their impact grow as well and prices and price formulas are increasingly reflecting market trends. Structural changes at the wholesale level are gradually descending to the retail level (as wholesalers and suppliers are trying to convey risk or part of the risk to end-customers). Given the trend towards market prices and their dynamics, the question that is increasingly posed by both suppliers and end-customers (from the industrial sector in cases where the share of natural gas costs in total final product costs is significant) is "when and how to contract natural gas?". The paper presents a general overview of price models (their definitions) in Europe and in the world and the movement of the shares of each individual model at wholesale level in Europe in the last thirteen years. Furthermore, a parallel overview of individual price models from ratio between the risk on one hand and monitoring of price signals on the other hand will be presented together with methods for achieving the appropriate ratio between the aforementioned (a portfolio that combines to a certain extent dynamic (market price monitoring) and conservative (keeping a stable price) approach. Given the dynamics of natural gas price trends over the last few years (which will also be presented in this paper), and the growing dilemma when to contract natural gas, it is possible to expect that the models that have been present in Western Europe for several years will become in the next few years in wider application in the Republic of Croatia (in which they are currently only partially implemented).Therefore, the paper also presents an overview of situation in the Republic of Croatia based on the experience of the authors (involved in natural gas sales at the liberalized natural gas market in Croatia since the very beginning, including switching supplier for the first industrial customer in Croatia) and the feedback from communication with the industrial natural gas users, gained also through workshops on natural gas pricing and contracting (when and how to contract the natural gas) held by the authors of this paper.

Keywords: Natural gas, price model, gas hub, oil linked formula, gas indexed formula

JEL classification: D47, E30, N70, N74, P18

PRICES ASYMMETRY OF CRUDE OIL AND OIL DERIVATIVES

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Abstract
The issue of price asymmetry is increasingly coming into focus of scientists due to the growing automobile dependency and negative distribution of revenues connected with an erratic formation and asymmetry of prices. A majority of empiric researches examine behaviours in fuel pricing on the market with regard to changes in oil prices. The results vary and most of the authors negate the premise of symmetric price adjustment and seek to prove that the prices react faster when oil prices increase than when they fall. The review of past researches shows that they differ in data frequency, data sample, period, choice of input prices and specification model, hence the conclusions on price asymmetry differ as well. This is why the asymmetry of oil prices and oil derivatives is the subject of numerous discussions and analyses, especially when there is price increase in oil derivatives which indirectly affects revenue distribution. The paper describes three types of price asymmetry; the type depending on the length of reaction period, the type depending on the size of change and a combination of the time and size of the reaction. Accordingly, the objective of this paper is to contribute to the quantification of the price asymmetry of oil and oil derivatives on the territory of the Republic of Croatia with special attention given to the period from February 2014 to September 2019 when market formation of prices was introduced. Given the frequent oscillations of oil prices, an impression is gained that the prices of oil derivatives increase when the price of crude oil increases, while there is no adequate correction of retail price of oil derivatives in case of decrease of oil price. Whether the traders on the domestic market adapt equally when oil prices fall and grow will depend on several factors and this paper aims to give an overview of them. Considering that Croatia satisfies the most of its needs for oil and derivatives from import, this topic is gaining in importance. Of particular interest is the period from introduction of free formation of prices February 2014 onwards.

Keywords: asymmetry, price, petroleum product, market

JEL classification: D4

POPULATION DECLINE AND POPULATION AGEING IN CROATIA: THE EFFECT ON ENERGY CONSUMPTION

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Abstract
Residential energy consumption has significant share in global energy consumption. Despite great technological advancements in energy efficiency, the global energy consumption is expected to rise around 60 percent by 2040 compared to 2010. One of the background factors is demographic change, namely demographic ageing. It has been shown that individual's age has strong positive correlation with energy consumption. Given the changing age structure of the population, specifically in developed countries, demographic ageing will have several implications on energy consumption. However, the case of Croatia is rather interesting: there are two ongoing population processes with differing effect on energy consumption. Croatia is witnessing both population decline and population ageing. Since ageing is positively correlated to energy consumption, it is not clear whether future energy consumption will rise given the intensity of population decline. Utilising Bayesian population projections and simulated age-specific and gender-specific energy consumption this paper projects the effects of population ageing and population decline on total energy consumption in Croatia.

Keywords: population decline, population ageing, Bayesian probabilistic projections, energy consumption

JEL classification: J10, J11, J18, Q41, Q47

DEMOGRAPHIC DETERMINANTS OF ENERGY CONSUMPTION IN EU COUNTRIES

Is energy consumption dependent on demographic processes?

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Abstract
It is a fact that EU countries are facing an unprecedented demographic future. The combination of very low fertility in the long term and a continued increase in life expectancy inevitably lead to population ageing and population shrinking. But, there are several issues that can lead us to the decoupling thesis: (i) is economic growth in developed countries happening despite the demographic decline; (ii) what is the impact of demographic processes on the economic growth and energy consumption; (iii) how much pressure demographic processes put on energy consumption. Due to this research problems, the paper aims to investigate the potential correlation of individual components of demographic trends with energy consumption in general. It is also essential to keep in mind that demographic changes can affect not only macro variables such as aggregate consumption but also their composition. The countries of the European Union differ in the direction, size, intensity and structure of demographic processes. Given the different demographic trends among the EU countries, it is expected that there is a different magnitude of their impact on energy consumption. Data and research show that the impact of several demographic processes on energy consumption cannot be ignored. Demographic changes are affecting the level and structure of energy consumption. A common EU country process is the process of population ageing. All projections indicate the growing impact of an ageing population, which will create additional obstacles to reduce future energy consumption. The dominant demographic processes in the EU are driving the increase in energy consumption and thus making it more difficult to decouple economic growth from environmental impacts.

Keywords: demography, energy consumption, population ageing, European Union

JEL classification: J11, 013, Q41

NUCLEAR POWER ECONOMICS FOR ENERGY TRANSITION

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Abstract

Energy transition encompasses several profound transformations leading to a low-carbon future: improvement of energy efficiency across energy supply/demand chains, broader use of electricity in all types of applications (e.g. transport, industry, households…), increased share of distributed generation of electricity and changes in electricity supply mix towards low-carbon options (e.g. switching from coal to natural gas, increased deployment renewables).

One of energy supply options is nuclear power which represents about one third of low-carbon electricity generation today. However, in recent years, global share of nuclear power in total gross electricity generation has decreased to just above 10%. Slow-down in development has been visible since mid-nineties. Therefore, it is right to wonder if nuclear can contribute to climate change mitigation? What should be done to see nuclear play an important role or at least stays at the current level of deployment?

According to the IEA Sustainable Development Scenario (i.e. scenario in line with 2 degrees increase limit), share of nuclear could reach 13% in 2040. In terms of total power, that would mean increase from the current 400 GWe to almost 680 GWe. Due to aging of currently operating units, total new additions should accumulate to 400 GWe, i.e. around 2 GWe per year. Lower estimate sees nuclear stabilising at 8.5-9.0%, but even in that case there's a need for huge investments into replacements of existing fleet. The IAEA high estimate shows similar values and it is based on realistic capabilities of equipment providers, stated national plans and expected global climate change mitigation trends. Together, analyses strongly suggest there's an urgent need to secure pre-requisites to reach assumed construction levels.

There are several proven and commercially available designs (so called III and III+ generations). It is safe to say these are only realistic choices for operators during next 10-20 years. At the same time, there's a substantial effort invested into development of small modular reactors (SMRs), but still no commercially available design. SMRs are expected to offer lower overall investment (smaller units), while modularity and off-site pre-production should allow greater flexibility, shorter delivery time and overall cost optimisation. Additional products market could increase attractiveness of nuclear in some cases (e.g. provision of heat for thermal processes, hydrogen production, desalination…).

Once constructed, a nuclear power plants represents a low-carbon source of electricity with stable and predictable production costs, stable in operation and can contribute to local industrial development. In order to be successful in the market, nuclear has to be cost competitive, especially compared to other low carbon options (e.g. hydro, solar, wind). This can be achieved by simultaneous actions in several areas: At vendors' side there's a need to orient toward proven and efficient designs, improve management of plant construction in order to control/contain costs inside expected/contracted values, secure cheap financing and

confidence of financing institutions and respect contracted timelines, so that overall generation costs are kept at stable and reasonable levels; Secure political support and public acceptance; Change and adopt electricity markets architecture and power system operation so that real, full costs of individual options are recognised and correctly costed/priced (technology direct costs, as well as costs induced in the system by interacting with other parts of the system and other external society costs)

Keywords: Nuclear Power, Climate Change, Energy Transition

JEL classification: Q42, Q47, Q54

A DYNAMIC NETWORK COMPARISON ANALYSIS OF CRUDE OIL INTERNATIONAL TRADE

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Abstract
The world crude oil trade is subject to the unbalance distribution of crude oil production and consumption which has increased the concern for sustainable development and economic stability in the face of deteriorating energy security. Based on OPEC country groupings, this article characterizes a dynamic international crude oil trade network of major oil exporting countries using the network connectedness measure of Diebold and Yilmaz (2014, 2015) and the existence of asymmetric reaction of crude oil bilateral trade flow in response to the positive and negative changes of driving forces and resistances using the nonlinear panel auto regressive distributed lag model during 1980–2018. Results indicate the existence of large and time-varying spillovers among the crude oil trade flow volatilities of Iran, Russia, USA and Saudi Arabia in crude oil international trade network. The findings also show that Iran's crude oil trade flow is a net volatility receiver from Middle East, Asia Pacific, Western Europe, Africa, America and Eastern Europe respectively, whereas Saudi Arabia experiences a net volatility transmission to Africa and bilateral spill over against other groups. Furthermore, USA reveals a unilateral spill over to Africa, Middle East, Western Europe and Asia Pacific respectively, while a bilateral spill over against America and Eastern Europe and finally Russia faces a unilateral spill over from Western Europe, Asia Pacific, Middle East, Eastern Europe and America respectively with no evidence of spill over against Africa. Also based on gravity model, crude oil bilateral trade flow of suggested oil exporting countries reacts directly to the increasing and decreasing changes of gross domestic product (GDP) per capita in both exporting and importing countries and the difference of proven crude oil reserves as well, while the effects of increasing and decreasing components of transportation costs are negative. Finally, the analysis confirms the existence of impact, reaction and adjustment asymmetry among crude oil bilateral trade flow and the key determinants of gravity models through different magnitude for the main world crude oil trade participants. Consequently, it seems changing crude oil trade policies is required for Iran and Russia policy makers specifically, in order to smooth the negative impacts of unexpected events in energy sector.

Keywords: Crude Oil International Trade, Dynamic Network Connectedness Measure, Gravity Model, Nonlinear Panel Autoregressive Distributed Lag Model.

JEL Classification: (C22, F13, Q370, Q43, Q47, Q370, C320)

INFLUENCE OF ENERGY TAXES ON DEMAND FOR RENEWABLES - PANEL ANALYISIS

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Abstract
The aim of this paper is to identify influence of energy taxes on demand for renewables. Namely, ecologically motivated taxes on energy products can give an effective incentive for businesses and households to take into account externalities connected with transformation and energy usage. This is why more and more states are adopting laws and regulations trying to regulate environmental pollution and redistribute tax burden from work to (harmful) materials and pollutants. The use of environmental taxes and fees is growing significantly among EU Member States, which have many positive effects. The benefit of using environmental taxes is that they can improve the quality of the environment, while at the same time enabling tax relief of work and can thus also increase employment. But one drawback is that the application of environmental taxes can very easily violate the principles of fairness in taxation and the equal distribution of the tax burden. Also there are doubts that this is a way to raise additional funds, as environmental taxes in most EU Member States are very fiscally profitable. Therefore, this paper examines the theoretical background for introducing environmental taxes, provides a comparative overview of existing differences in the application of energy taxes between EU Member States and analyses their effects. In order to define these effects as precisely as possible, the relationship between energy taxes and the demand for renewables is examined, respectively, the relationship between environmental taxes and the intensity of greenhouse gas emissions in energy consumption. For this purpose, the data available on Eurostat for the 28 Member States of the European Union for the period 2000 to 2017 were used and a panel analysis was carried out. Based on the empirical analysis, it was concluded that energy taxes have a positive impact on renewables, while environmental taxes have a negative impact on the intensity of greenhouse gas emissions in energy consumption.

Keywords: energy taxes, environmental taxes, externalities, renewables, panel model with fixed effects

GREEN DEAL AND OIL INDUSTRY – TRANSFORMATION TOWARDS LOW CARBON ECONOMY

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Abstract

As a largest source of greenhouse gas emissions, industry sector is at the front line of tackling with this challenge. Energy policies are being adjusted to meet the energy security and deal with environmental threats, but there is still no single or simple solution to reach sustainable energy goals. European Investment Bank has already announced that fossil fuel based projects financing will soon stop, which is a strong signal to European industry to transform and make transition towards new, clean energy sources.

With Green Deal package, EU wants to lead the global fight against climate change, and reaching zero emission targets by 2050 means transformation of the EU economy affecting all, from transportation and agriculture to energy production. Zeroing out greenhouse gas emissions by the middle of the century is the top priority and committing to climate neutrality would put EU in sync with objectives of the Paris Agreement.

INA as a member of MOL Group is dedicated to development of a new "clean energy" industrial pillar which is complimentary to the "European Green Deal" and will have strategic importance for Croatia for decades to come. INA Downstream 2023 New Course Program, focused on ensuring sustainability and profitability of INA refining system, includes, among other elements, transformation of existing Sisak oil Refinery to an industrial centre within which INA is developing the Biorefinery project. These activities represent a shift towards bio economy through introduction of new advanced technologies and creation of new jobs, with special focus on rural areas with high unemployment rate up to 30%.

Synergy between science and industry is mandatory for enabling successful transition to new, fourth generation industries implementation and production of sustainable bioenergy and biochemicals.

Aim of the project is establishment of sustainable industrial activity at Sisak industrial site, which would consider production of second generation bioethanol with negative carbon footprint, in synergy with green energy production and biomass supply chain establishment. Final project result will be the construction of an energy self-sufficient bio-industrial complex with an annual output of 55 000 tons of cellulosic 2G bioethanol, up to 5 MW electricity export to the grid and approx. 60 000 tons of CO for INA Enhanced Oil Recovery, which would mean using bioenergy in conjunction with Carbon Capture Utilization and Storage (often called "BECCS"), the so - called negative emissions technology. It is expected that this type of technology may play critical role in the future. Project implementation requires involvement of multiple levels and multiple sectoral stakeholders, as it connects

biotechnology, agriculture, environment protection, energetics and education, which can only be done with strong support of the Government and all relevant stakeholders involved.
Expected project results are encouraging education in areas of bio-technology and bio-economy, creation of new jobs in rural area, development of fourth generation industry activity and using of existing equipment, activation of unused third category land for feedstock - energy crops cultivation in the radius of 100 km from Sisak and production of biofuels with negative carbon footprint, which helps Croatia to reach EU Renewable Energy Directive II goals for 2030, related to using advanced biofuels in transport.
In this sense, INA has done a major step forward through conducted testing activities which have included setting up a foundation for biomass supply chain establishment, including test field establishment of energy crop Miscanthus x giganteus in 2017, which was first time harvested and baled in 2019 and biomass successfully converted to bioethanol on a demo scale. The biomass testing for biofuel production took place under the EU funded GRACE project (GRowing ADvanced Industrial Crops on marginal lands for biorEfineries), financed by the European Union. Collected biomass was sent to Clariant, a focused and innovative specialty chemical company to their pre-commercial sunliquid® plant in Straubing, Germany, for processing and conversion into lignocellulosic sugars and ethanol. The results give cause for optimism as they show that the sunliquid® technology can successfully convert miscanthus into lignocellulosic sugars and ethanol. Biorefinery project is currently in engineering phase and selection of best available technology is in progress.

Keywords: oil industry, green deal, biorefinery, low carbon economy

JEL classification: Q2, Q4

BRANDING AND BRAND MANAGEMENT IN ENERGY SECTOR

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Abstract
On the energy market and in the energy sector of European Union significant changes took place in the last 30 years. Western countries of the EU have transformed energy system from one of closed national market with vertically integrated energy companies (state or privately owned) in one of open market with international competition on the energy market. East-European countries of the EU have transformed energy system from one of closed national market with social prices and centrally-planned (socialist) management in one of open markets characterized by international competition on the energy market. Energy markets are thus divided into monopolistic component (where traded are services such as transport and distribution of natural gas and electric energy) and component open to competition (where either energy is produced or it is traded, such as production and sale of natural gas and electric energy). Energy companies have undergone significant organizational, accounting and legal transformation, thus adapting to new institutional regulation of both the energy market and energy sector.
According to the market philosophy of doing business, very important factor of market success is the perception that customers (consumers) have of the product and the company that supplies them with the energy. That perception of consumers can relate to quality, price, reputation of the company, its treatment of environment (green marketing) and society in general. Experiences and successes in differentiation of similar products and services through the years, and of which different groups of consumers have different perceptions due to brands and branding, serve as an incentive for application of that concept on the energy market as well. Jones has already in 1930 stated that some companies can sell their products for higher prices than their competitors and be attractive to consumers only because of having a brand and managing it successfully. All of that has influenced the change in behaviour of energy companies which shift more and more towards the market philosophy of doing business, recognizing its effectiveness in environment characterized with fierce competitiveness. That focus on the market philosophy of doing business primarily means achieving equally-important goals, which are: satisfaction of needs, wants and expectations of consumers, work for the long-term success of the company and continuous work for the benefit of the society in general. In order to reach these set goals market preferences for choosing the certain providers of energy, satisfaction and loyalty to them should be understood. Integral parts of energy market are brand and brand management as well.
In these paper analysed are branding and brand management in energy companies in Croatia and in European Union.

Keywords: brand, market, monopoly, consumer

JEL classification: M3

ENERGY TRANSITION OF EUROPEAN UNION

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Abstract
Fossil fuel-based economic growth and development are unsustainable due to climate change. Climate change is the result of greenhouse gas emissions, while greenhouse gas emissions are the result of fossil fuel consumption. Considering the growing demand for energy in developing countries, primarily China, but India as well, new models of economic growth and development based on renewable energy sources are required. The transition from fossil to renewable energy sources takes place through energy transition. Energy transition encompasses numerous changes, two of which are the most significant. The first is a gradual change in the structure of power generation capacities. Fossil fuel capacities are decreasing, while renewable capacities are increasing. The second change is based on the technical and technological progress in transport, as a major energy consumer. Electric vehicles are gradually replacing fossil fuel-powered vehicles. This is accompanied by a digitalisation of the energy sector, through the establishment of the smart grid. As a result, a new energy market model is formed in which an energy consumer is at the same time an energy producer, a prosumer, while centralised energy production is replaced by distributed energy production. The European Union was the first to initiate energy transition, followed by other countries as well.
This paper analyses the causes of the problems by analysing energy consumption, as well as the problem itself by analysing the carbon dioxide emissions. A solution to the problem is seen in energy transition as modelled by the European Union. The decoupling of gross domestic product (GDP) growth from energy consumption and greenhouse gas emissions reduction or stagnation is analysed. This paper analyses the new energy market model, as the result of energy transition. New trends, as well as future developments as practiced in the European Union, are presented as the result of the new model.

Keywords: Energy Transition, Prosumer, Smart Grid, Virtual Power Plant, Demand Response

JEL classification: D4, O1, Q4

COST AND INCOME STRUCTURE IN ENERGY MONOPOLIES

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Abstract
Changes in the Energy Sector - the energy transition triggered by climate change and the introduction of market principles – have led to the division of the energy sector into market and regulated parts. Energy sector regulation consists of technical and economic regulation of regulated activities - natural monopolies. Economic regulation of energy natural monopolies deals with the analysis of the economic part of the business of natural monopolies while meeting the regulatory objectives. The goals of the regulator are related to the provision of a public service of a natural monopoly at a reasonable price, with justified levels of profit and defined quality. In economic terms, regulation seeks to reduce the price of services to a marginal price. Since marginal prices do not include fixed costs but only the costs of an additional unit, the question of how to fairly allocate fixed costs to the service users of energy natural monopolies arises. In doing so, it is necessary to divide costs into fixed and variable ones, i.e. those that relate to the additional unit of energy transferred and those that do not depend on the amount of energy transferred. The use of natural monopolies in energy indicates the capacity used per unit of time and the amount of energy transferred. The capacity used is related to the reservation of a portion of the natural monopoly's transmission / transport capacity whereas the amount of energy transferred is related to the amount of energy transferred through the natural monopoly, or how long that capacity is used over time. Due to this feature, the tariffs for the use of natural energy monopolies consist of a part for the capacity charge and a part for the volume charge. This raised the question of the link between the economic dimension of fixed and variable costs and the technical characteristics of using natural energy monopolies -capacity and volume, i.e. the structure of tariffs for the use of the energy natural monopoly. It also raised the question of the market characteristics of the natural monopoly and its impact on the tariff structure for the use of the natural monopoly. For the purposes of that analysis, the analyses of balance sheets, profit and loss accounts, revenue tariffs and market characteristics of three different energy monopolies, HOPS electricity transmission, PLINACRO gas transportation and JANAF oil transportation, were made. Balance sheet analysis shows that regulated natural monopolies have a significantly different capital structure, a comparison of profit and loss accounts shows that the companies have a similar cost structure whereas the analysis of revenue tariff structure shows completely different revenue tariff structures. This raised the question of what the main determinant of the revenue tariffs structure for energy natural monopolies is. In addition to the cost characteristics of energy natural monopolies, the market characteristics of natural monopolies play an important role in shaping the revenue tariff structure.

Keywords: natural monopoly, regulation, revenue, fixed costs, variable costs, tariffs

CIRCULAR ECONOMY AS A VISION

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Abstract
When a complex economic system grows within a materially finite context and with the ignorance of negative external effects, a paradox of unmet needs along with underutilized, or wrongly utilized, potentials can only be explained by a system's fault lines. Also, cardinal context changes inspired by the fourth industrial revolution in the new millennium dawning exacerbated rewriting of existing rules. Planet Earth's system dynamics consists of three layers: economic layer, physical layer, and biosphere. The economy can't do what nature does, but to make the system dynamics sustainable, the economy can follow some principles based on which nature is functioning. A sustainable and inclusive economic system can only be based on the analogy with circular processes in the physical system and adaptive evolution in the biosphere. The new logic in macroeconomics and business economics has to promote the broader and systemic thinking about the economic system, synthesizing both micro and macro perspectives into a single point of view, the reversibility principle. Also, structural imbalances in the economy and existential ecological threats can't be managed exclusively by the market invisible hand. The solution needs visible and coordinative role of the state. Besides, the escape from structural recession can't come almost exclusively from inflation targeting policy tool, and should include the other side of the economic policy equation, structural side (or industrial policies). The aim of this paper is to investigate how to translate the forces of the new normal into a model of growth and specific policy platform to harness the new economy rules for sustainable and inclusive growth, both toward the people and nature. The prevailing idea is to get microeconomics and macroeconomics paradigms under the same roof.

Keywords: Industry 4.0, circular economy, heterodox approach, industrial policies, automatic stabilizers

JEL classification: E61, O23, O25

REVIEW OF CARBON FOOTPRINTS IN HIGHER EDUCATION

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Abstract

Constantly increasing global warming induced by greenhouse gas (GHG) emissions has led to a promotion of energy efficiency in almost every sphere of life. There have been several attempts to fight global warming and climate change, such as the introduction of the Kyoto Protocol in 1992, or the United Kingdom's Climate Change Act in 2008. In this quest, measuring the GHG emissions has become an important starting point. Thereby, the term "carbon footprint" was introduced. It refers to the amount of CO2 or greenhouse gas emissions (expressed in CO2 equivalents) caused by a product, a company, or even a country. However, there is still no universally accepted definition of carbon footprint. All definitions are related to human activities, but a consensus on what GHG emissions to take into account in measurement has still not been reached. The GHG Protocol developed by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD) presents a global and widely accepted methodology for GHG accounting. It classifies GHG emissions into three scopes; Scope 1 emissions refer to direct emissions, Scope 2 emissions include indirect emissions from the generation of purchased energy consumed by the reporting company, while Scope 3 emissions encompass all indirect emissions that occur in the value chain of the company (which have not already been included in Scope 2 emissions). According to WRI and WBCSD, Scope 3 emissions have recently become the largest source of emissions and the most significant opportunity for GHG reductions.

When talking about carbon footprint in higher education institutions, organisational carbon footprinting is applied. Although it is a significant sector in the EU, with 19.6 million students and 1.5 million people teaching in tertiary education in 2016, there is still no international standard for carbon footprinting. In addition, some higher education institutions have already committed to reducing their carbon emissions. Different methodologies have been applied for the purpose of measuring the carbon footprint in the sector. The conclusions went in the direction that Scope 3 emissions are rising and becoming more difficult to quantify. An additional problem refers to optional reporting on Scope 3 emissions, which makes it more difficult to compare those emissions between companies. Thereby, it is necessary to improve the methodology used for measuring Scope 3 emissions. Researchers have also concluded that the main source of emissions in higher education institutions comes from energy (electricity).

One of the best ways for higher education institutions to reduce their environmental impact is to incorporate online learning as a way of education. Online learning would significantly reduce the carbon impact of student and staff travel as would technological improvements and the use of renewable energy sources. Promoting environmental sustainability by higher education institutions would have a significant role in shaping the future generations'

opinions, and it should be a priority.

Keywords: carbon footprint, carbon accounting, GHG emissions, climate change, environmental accounting

JEL classification: Q4, Q56, Q57

THE ROLE OF TOURISM IN GENERATING WASTE ON ISLANDS

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Abstract
Last few decades the global tourism market records increasing numbers of international tourist arrivals, which positively affects to tourism destination. Since the 1990's, there has been increased attention paid to understanding the negative impacts of tourism on the environment. Very often it is caused by increased number of tourists and unplanned tourism development. Therefore, the tourism sector try to finds the ways in which it will respond to increased higher and more specific consumers demands. At the same time, it seeks new approaches and strategies towards environmental sustainability in their management practices. To be more sustainable, the tourism industry needs to apply specific strategies to reduce its environmental footprint. Thus, sustainable tourism development becomes a paradigm shift to include a green orientation as a way to achieve these goals. As such, the concept of sustainability has become of paramount concern in tourist destinations, especially in ones with long tradition of tourism development and on isolated geographies area such as the small island communities are.
Tourism produces huge amount of waste. Therefore, it is crucial to establish efficient waste management, especially on islands which have limited land space for solving this problem. The concept of green orientation in tourism involves reducing of waste and efficient waste management.
The purpose of this paper is to explore and compare the widespread and importance of greening process in the tourism industry today due to reducing large environmental footprint which tourism crate, particularly focusing on how to manage waste in proper way in small tourist destinations, in this case - islands.
The research has shown that tourism industry is a huge generator of waste and that is a great challenge for islands to find ways how to solve this. Even the strategies and law on waste management exist; this problem hasn't been solved on Croatian island jet. On Croatian's islands, that problem isn't solved on acceptable way even the strategies and laws exist. However, there are some positive example how it could be implemented, for example island Krk.

Key words: sustainable tourism development, greening in tourism, waste in tourism, islands, Croatia

AN EXPERIMENTAL APPROACH TO THE RESOURCE CURSE

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Abstract
Significant theoretical and empirical evidences suggest that abundant natural resources hinder both economic growth and social development on the long run. Political economy models of the resource curse argue that abundance promotes rent seeking on the micro level and favors for weak institutions on the macro level. Specialization in resource extraction crowds out other fundamental sources of growth, causes losses in international competitiveness, cuts positive spillover effects, undermines both social cohesion and political trust, while ultimately clogs the economy into a development trap. The concept described in this paper aims to provide further insight into the curse by a gamified classroom experiment. Based on a competition between self-interested individual actors, the game design features both an economic and a political framework to capture the development outcomes of different resource-endowments. Organized as a turn-based game of sequential decisions, it offers economic actors a choice between rent-seeking and productive activities, whereas a political election mechanism provides scope for endogenous policy-making and controls for the extraction of the resource pool. The experiment yields time-series of macroeconomic indicators as aggregate measures of individual activities. Results from iterated gameplay under different initial conditions are expected to provide new experimental evidence of the curse and a better understanding of its transmission channels.

Keywords: growth, resource curse, political economy, gamification, classroom experiment

JEL classification: C91, C92, D72, O13, Q32

SUSTAINABLE DEVELOPMENT STRATEGY OF ECOLOGICAL AND HEALTH TOURISM: THE CASE OF CITY OF NOVI SAD

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Abstract

National strategy of sustainable development of tourism is a core for positioning Serbia as international destination. The essential part of the strategy can be ecological and health tourism. Natural and cultural resources are precondition for sustainable development of tourism. The challenges for development ecological and health tourism in Republic of Serbia are the following: defining eco-tourism and health brands, to complete privatization of tourism complex, to improve entrepreneurship in tourism, and education of people about importance of development of ecological and health tourism for national economy. United Nation World Tourism Organization recommended to their organizational members to define and spread national strategy for sustainable development of ecological and health tourism. Main aim of this paper is to emphases major guidelines for define national strategy of sustainable development of ecological and health tourism in Serbia in following relation: vision-strategic goals-operation goals-government measures-projects.

To provide guidelines for national strategy formulation, anonymous interview with 500 citizens in Novi Sad had been conducted. The authors formulized their own questionnaire for assessing attitudes about tourist destinations and citizens' wishes regarding hospitality services. First four questions were categorical (gender, education level, age, and salary of respondents), followed by 22 questions about citizens' opinions about tourism in Serbia i.e. what do you think about Government investment in tourism? Did you use ecological and health tourism services in Serbia? Main proposition was: There were no statistical differences between respondents' attitudes regarding their gender, age, education level or monthly salary. The data processed by relevant statistical methods (MANOVA and discriminative analysis). The research findings revealed significant differences regarding gender but none differences regarding education level or salary of citizens in Novi Sad. Based on research findings, authors presented guidelines for policy makers. Proposed vision could be: Serbia will be well known tourism destination, place of untouched nature, sustainable tourism as well as place devoted to health. Main strategic goals are: to create image based on ecological and health tourism; competent tourism workers; to improve institutional infrastructure, and to develop cooperation between universities, research institutes and tourism organizations in Serbia.

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Main priority can be investments in people both workers in tourism sector as well as Serbian citizens. The first measure can be to improve tourism offer and prolong tourism season. To promote sustainable tourism in Serbia, especially ecological and health tourism, authors proposed the following projects aim to diagnosis of resources in tourism, to create data basis of resources, to renew of tourism capacities and built new one, to mark key tourism objects and destinations, and to draw urbanism plans in order to use tourism potentials. Final part devoted to study limitations and avenues for future research.

Keywords: Sustainable development, strategy, ecological and health tourism, Novi Sad

JEL classification: Z32, L88, O52, C83, C88

EVALUATING SUSTAINABLE DEVELOPMENT AND CIRCULAR ECONOMY GOALS OF SELECTED EUROPEAN COUNTRIES

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Abstract
This research aims to empirically evaluate and rank selected European Union (EU) countries in achieving sustainable development (SD) and circular economy (CE) goals. Legislation of the European Union imposes similar rules and regulations, which should push practices towards similar behaviour of every country. Although the research on SD and CE issues is growing rapidly in the last couple of years, there still exists a gap regarding objectively measuring the realization of SD and CE goals. This is mostly true for the CE specific themes. Moreover, a gap in the literature exists regarding measuring the efficiency of countries concerning both areas. The empirical analysis in this paper focuses on yearly data for the period 2010-2016 for 23 EU countries (Austria, Belgium, Bulgaria, Croatia, Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Italy, Latvia, Lithuania, Netherlands, Poland, Romania, Slovakia, Slovenia, Spain and Sweden). The methodology utilized within the study consists of Grey Relational Analysis, a nonparametric approach of ranking entities based on multiple criteria. The ranking was made based on variables which measure SD and CE goals in conjunction, and additionally, by separating the two groups. Robust rankings indicate that differences between countries exist, which are most obvious between the Western and Eastern countries. However, the worst-ranked countries are showing an increase in their respective Grey Relational Degrees, which indicates that an increase of SD and CE efficiency within those countries, is found in the last couple of years. Policy recommendations comments are based on the results of the analysis. The robustness of the results is checked via another nonparametric approach (Data Envelopment Analysis), which confirms the previously obtained findings.

Keywords: performance evaluation, Grey Relational Analysis, ranking, pillars of sustainable development, principles of circular economy

JEL classification: C14, Q01, Q56

GREEN BONDS

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Abstract
The green bond market is growing rapidly over the last decade, with the initial value of 0,8 billion USD rising to over 760 billion USD of cumulative issuance in 2019. A green bond is a fixed-income instrument for financing or refinancing green projects, mainly covering renewable energy, energy efficiency, and clean transport. The eligible green projects promote climate policy, environmental protection, and sustainability of economic resources. The bonds are labelled as green at the time of issuance if they are aligned with voluntary process guidelines contained in the Green Bond Principles (GBP). The establishment of the GBP in 2014 fostered the development of the green bond market by providing transparency and increasing the trust of investors. The paper presents the main components of GBP: use of proceeds, process for project evaluation and selection, management of proceeds and reporting. Different classification criteria are applied to describe various types and features of green bonds. The potential advantages and disadvantages of green bonds are considered from the point of view of the issuer and investor. The aim of this paper is to provide theoretical framework and raise the awareness of important market instrument for funding sustainable development projects, by filling the gap in Croatian literature related to innovative sources of sustainable finance.

Keywords: Green Bond Principles (GBP), sustainable development, decoupling, green bond market, green bonds

JEL classification: Q01, Q56

Acknowledgement
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GREEN BONDS: MARKET CHALLENGES FOR INNOVATIVE AND SPECIALISED FINANCING INSTRUMENTS

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Abstract
Green bonds are innovative capital markets debt instruments specially created for an easier and more efficient approach to the financial sources in projects with the primary goal of environment protection and investments in clean energy. The idea of green bonds issuing developed from the global trend of importance and concern for environment protection due to the extreme climate changes. Moreover, issuers emphasise their responsible behaviour and concern for environment protection through the green bonds issuance, which can increase their value on the market. At the same time, more investors are themselves interested in socially and environmentally responsible investments while looking for new investment opportunities. This paper analyses the problem of "green" project financing and the efficiency of green bonds with remarks on their impact on alternative, clean energy sources development and environment protection. In that sense, the analysis of the role and perspective of issuers and investors in green bonds, i.e. in achieving the goal of efficient financing of "green" projects, is conducted. The main goal of the paper is to point out the financial role and possibilities of green bonds in environmental protection and clean energy development. In the empirical research part of the paper, the comparative analysis is made for the Republic of Croatia on the available data for environmental protection and renewable energy projects value as well as the leading institutional investors' data in the part of investment potential. The results of such analysis may be a valuable source of information, used for better understanding of the importance and the role of innovative capital markets instruments in financing capital intensive, but environmentally responsible projects which comprise public interest. Consequently, governments could also benefit from green bond usage, recognising the possibility of their inclusion in financing renewable energy and environment protection projects if public expenditure value in that part is taken into consideration.

Keywords: green bonds, environment protection, alternative energy sources, financing, investment, institutional investors

JEL classification: G23, H54, O13, Q42, Q50

BIOECONOMY IN THE EUROPEAN UNION AND CROATIA

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Abstract
The need to move the world economy towards a more sustainable, innovative, resource efficient, renewable energy based economy, that is, the bioeconomy, has gained new momentum at the global and regional levels in recent years. The European Union's bioeconomy is one of the largest and most important sectors of the EU, in line with the European model of achieving inclusive, sustainable and smart economic growth, with annual turnover of around EUR 2.3 billion, with an added value of EUR 621 billion and 18 million employees. As such, it forms an important part of the overall economy in the EU and is presented in the updated bioeconomy strategy for a sustainable Europe as the next wave of economic development that offers great opportunities for innovation, jobs, growth and reindustrialization. In this context, this paper includes an overview and comparison of existing bioeconomic strategies, policies and/or related initiatives and indicators at EU level, as well as existing sectors within the bioeconomy at the national level, in particular in Croatia. In addition, the paper analyzes key indicators of the bioeconomy and monitors the progress of the EU Member States for the period 2008-2015. Finally, the empirical analysis indicates clear economic differences between the members that generate lower value added, followed by higher employment in the observed bioeconomy activities and those that have a leading position in terms of turnover and high added value. Furthermore, a chronological analysis of the adopted documents and strategies at the level of individual members shows that in most EU Member States the importance of formulating a national strategy has not yet been recognized. Finally, the paper highlights major trends in the development of the EU bioeconomy, places them in the context of broader global developments, summarizes the key drivers and discusses their macroeconomic importance.

Keywords: bioeconomy, natural resources, European Union, Croatia

JEL classification: E60, O11, Q01

GREEN JOBS: PROPOSAL FOR MEASUREMENT IN CROATIA

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Abstract
Industrialization changed the world drastically and industry is still recognized as the engine of growth. But, as the world population, its standard of living as well as their desire for consumption grow, the problems arise: industry uses Earth's finite natural resources extensively, pollutes environment and climate change rises. This leads to collapse in our economic and environmental systems. Briefly, conventional economic growth and conventional economy are no more sustainable. The mankind is in its search for decent quality life for future generations. As the answer, new paradigms arise; sustainable development, green growth, green economy, circular economy, green industry etc. The development is sustainable when satisfies the present needs of humanity without compromising future generations' ability in satisfying its needs and enables balance between economic growth, clean environment and social well-being. The definition of green growth is similar, just more turned towards economic growth and therefore pays special attention to natural assets and resources and their preservation in order to keep our well-being. In that context, social component is very important. This paper considers green jobs which are seen as the solution to both the environmental challenges and the persistent unemployment problems manifested in industrialized countries, especially in Croatia. Croatia's unemployment rate is mostly higher than the EU's average and the question is if the green jobs can help in its reduction. But, the definition of green jobs is still blurred and its measurement not widely accepted and registered. The purpose of this paper is to describe the definitional and measurement issues related to green jobs, with special reference to Croatian green jobs. First the idea of measurement via input-output tables is presented and later the analysis is conducted on Eurostat data on green jobs. Main conclusion of this paper is that green jobs currently represent a small share of overall employment in Croatia. Also, the measurement based on input-output tables is possible in Croatia, but further work is required. Finally, green jobs represent an opportunity for Croatia to stimulate green industry and green growth.

Keywords: Sustainable development, green economy, green jobs, IOT, Croatia

JEL classification: J08, Q01, C67

INFLUENCE OF TECHNOLOGICAL CHANGE AND DIGITAL TECHNOLOGY ON JOB POLARIZATION AND OCCUPATIONAL CHANGE

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Abstract
The article debates the pros and cons of technological change and its influence on the new employment circumstances analysing different outcomes. Change in technology has brought to higher educational requests for workers, leading to a lack of highly skilled workers and an extra supply of relatively unskilled workers creating structural mismatches. Digital technology and automation create temporary displacement and structural unemployment, but also leads to the creation of new high productivity jobs. Different international studies made by reputable world institutions (McKinsey, WB, OECD, etc.) estimated rather different approximations of the potential impact of new technologies on occupations and employment. Due to uneven technological progress around the World, but also inside the countries, "job polarization" appears. As a consequence, on the one hand, the share of employment in high-skilled, high-paying occupations (managers, professionals and technicians) and low-skilled, low-paying occupations (elementary, service, and sales workers) is growing. On the other hand, the share of employment in middle-skilled, middle-paying occupations (clerks, plant and machine operators) is being squeezed. The provided research analysis in selected OECD countries and EU-28, shows that as a result of "job polarization" the demand for high educated workers increase and unemployment has mostly hit people with primary and lower secondary education and less. After the crisis in 2008-2009, most countries were not able to return the productivity growth rates on the level before financial crisis. Technological progress influenced significantly technology intensity of the knowledge-intensive high-tech sectors, but decrease employment growth in low-tech manufacturing sectors. Changes in employment shares of different occupation groups in EU-28 and USA indicate present "job polarization" - high-paid professionals, but also low-paid service and sales workers raise their share in overall employment considerably. Medium-paid occupations, such as clerical support workers or craft and related trades workers and machine operators suffered the largest losses in terms of employment share. It can be concluded that "job polarization" accelerated since the crisis of 2008-09. As a result, the biggest threat from the digital revolution is not technological unemployment, but widening income inequality. The final outcome is hard to estimate, but besides having some destruction effects, new technologies and digital revolution will create some completely new jobs and support some additional jobs primarily in services sectors that are less easy to automate. Therefore, the policy implication in order to minimize the potential negative effects of technological change and "technological unemployment" should include appropriate forms of government intervention on time.

Keywords: Technological progress, automatization, occupations, "job polarization", structural change
JEL classification: J20, O33

DEFINING AND MEASURING DIGITAL ECONOMY IN CROATIA

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Abstract
The impact of digitalization has spread to businesses, public institutions and individuals. However, while the digitalization process has brought progress and many benefits, it has also caused some new problems and challenges that economic policy makers have to deal with. The aim of this paper is to define and measure the impact of the digital economy on gross domestic product in the Republic of Croatia from a methodological and legal point of view. For the purposes of this paper, the digital economy is defined primarily in terms of the Internet and related information and communication technologies, more specifically, sector J: Information and Communication in National Accounts, according to the EUROSTAT classification is analyzed. Exploratory and comparative analysis of the share of the digital economy in the GDP of Croatia, the EU and comparable Member States is conducted. The results of the analysis indicate that the share of the digital economy in the gross domestic product of the Republic of Croatia in 2016 was 4.16%, while the average share of the digital economy in the countries of the European Union (EU28) was 5.00%, which puts Croatia below EU average. However, if one looks at the share of employees in the digital economy relative to the total number of employees, Croatia is 3.08% above the EU average. The paper also discusses legal aspects, measurement issues and definitions of the digital economy in the EU. Although the idea of measuring the digital economy has existed for many years, there are also challenges associated with measuring it. The biggest challenge, of course, is the lack of one and generally accepted definition that would clearly include those activities and activities that should be taken into account when measuring the digital economy in a country. The European Commission has adopted a series of documents that highlight the digital economy as one of the European Union's priorities. However, there is different national legislation in EU Member States regulating certain areas that enter the digital economy. The paper provides an overview of possible definitions of the digital economy from a legal and methodological point of view, and gives the frame for further research in this area.

Key words: digital economy, Croatia, Gross domestic product, Gross value added, employment, legal aspects

THE IMPORTANCE OF CUSTOMS DIGITALIZATION – THE CASE OF THE REPUBLIC OF NORTH MACEDONIA

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Abstract
The Customs administration, as an authority in charge for all international trade flows of goods - import, export and transit - nowadays is facing the challenge of full digitalization of customs procedures thus providing paperless environment.
The aim of this paper is to put an emphasis on the impact from the rapid development of information technology upon the need of full digitalization of customs procedures and formalities and implementing paperless environment.
Facing the challenge, the Customs Administration of the RN of Macedonia put special effort and installed several electronic platforms: the Customs Declarations and Excise Documents Processing System (CDEPS), the New Computerized Transit System (NCTS), the Integrated Tariff Environment (ITE) and the Single Window for Licenses and Tariff Quotas (EXIM).
Another aspect of the process of full digitalization of customs procedures and formalities for the Macedonian Customs Administration is the process of transforming the free trade area established among the CEFTA-2006 countries, of which the country is a part, into higher level of economic integration by the establishment of the regional economic area. The process of deepening the economic integration among the member-states is based on enhancing cooperation among their Customs administrations through full digitalization. As part of the agenda on digitalization and paperless environment, the CEFTA – 2006 Agreement was amended with incorporation of additional protocols: Protocol 5 on liberalization of trade in goods; Protocol 6 on liberalization of trade in services and Protocol 7 on trade dispute settlement mechanisms. Protocol 5 sets forth requirements for higher level of regional cooperation and integration through customs digitalization and enhanced level of data exchange.
The paper is making overview of the current state of the implemented electronic platforms providing customs digitalization by the Customs Administration of the Republic of North Macedonia, as well as their performance up-to-date. It provides an overview of similar measures undertaken by other CEFTA Parties. The paper provides recommendations on the necessity for a synchronized and uniformed implementation of Customs digitalization processes, as well as of the implementation of interoperable interfaces and electronic platforms for processing of all documents and data for Customs purposes at regional level. Implementing the processes of Customs digitalization and paperless environment with

different pace in different member-states instead of providing deeper trade integration and trade facilitation might be a source for enacting new barriers in the trade exchange of goods within the regional economic area, which is already evident on the example of the Macedonian Customs.

Key words: Customs administration; digitalization; electronic platforms; economic integration.

JEL classification: F13, F19.

TRANSFER OF NORMS IN GLOBAL DIGITAL TRADE FLOWS

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Abstract
Efficient global trade demands a framework in which global and national norms align. Norm alignment depends on a transfer and successful absorption of commonly accepted multilateral trade norms, from international organisations to and by nation-states. This is especially important in changing conditions and trends in multilateral trade both in terms of the type of goods and services being traded and channels through which they are exchanged. Digital technologies have enabled development of new products and services and raised efficiency of trade. Digital trade volume has been increasing, yet monitoring and governing digital trade flows represents a global challenge. Customs duties on electronic transmission of data, goods and services, non-discriminatory treatment of goods and services, domestic regulation, electronic authentication and data protection represent a small part of regulatory framework that needs to be defined and preferably agreed upon a multilateral level. This paper studies digital trade norm transfer in a complex multilateral trading system governed and coordinated by the World Trade Organisation (WTO). Confronted with global shifts of power and diminishing trust, as well as changes in global value chains, business models and industry structures led by the rise of the digital economy, the WTO's role is being re-examined in terms of its effectiveness to successfully define global digital trade norms and enable their transfer to nation-states. The contribution of this paper is twofold. Firstly, it identifies key trend and issues that affect the transfer and absorption of digital trade norms between the WTO and its members. Secondly, it provides a foundation for a discussion about the implications of the WTO's role in the global digital economy as regulatory challenges and recommendations for the adjustment of global trade norms are described. The emergence of new forms of trade has immediate implications not merely for trade policy, but also for understanding of the very character of trade.

Keywords: digital trade, trade norms, WTO.

JEL classification: F13, F55, F68.

OTHER TOPICS

ASPECTS RELATING THE INFLUENCE OF SPIRITUALITY ON CSR IN DIGITAL ORGANIZATIONS

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Abstract
In the last years, the emphasis on corporate social responsibility is increasing due to the influence of digitalization and competition upon society. The access to information is instantaneously, thus, it is difficult for organizations to maintain a positive identity without involving themselves in social causes. These social causes have more success when led by individuals with certain skills who adopt an entrepreneurial behaviour.
More and more companies have adopted the work from home strategy in order to be more responsible and give employees the opportunity to self-develop and assume different responsibilities. The work from home environment offers another perspective, overcoming the cultural barriers and increasing the spiritual level. Although these individuals studied in a local educational system, they were trained at the workplace, which denotes a higher degree of spirituality already. They are young, dynamic and they are not tied up to language, culture, education, space, adopting an entrepreneurial behaviour. There are organizations that work with entrepreneurs by collaboration as well in order to reduce costs.
Entrepreneurial behaviour means creativity, empathy, innovation, values, confidence, initiative, integrity, firmness, positive thinking, flexibility, future orientation, organization and the assumption of social responsibilities.
A spiritual individual has the same qualities as an entrepreneur, more or less. Spirituality means innovation, empathy, integrity, positive thinking, confidence, values. It is a continuum of experiences. Spirituality could lead to a level of awareness that could direct towards more social responsibility and strong relationships. The synergy of entrepreneurship and spirituality could conduct to a better society and economy, leading employees, entrepreneurs and digital organizations to balance and fairness.
Digital organizations are multidimensional, innovative and autonomous. The most advanced companies and societies are different mixtures of individuals, employees and entrepreneurs who have creativity and amplify the innovation effect.
This article analyses the impact of spirituality on corporate social responsibility in digital organizations. The purpose of this research is to verify whether there are interdependencies between spiritual responsible behaviour, entrepreneurship and corporate social responsibility. This paper tries to answer to the question if spirituality or spiritual awareness could change

the approach with regards to corporate social responsibility and respectively be implemented in corporate social responsibility norms.
To check the aspects mentioned above, two questionnaires have been applied separately to a sample of 217 people who are entrepreneurs and employees. All have responded on their own initiative. The number of addressed questions was 9 in each questionnaire. As well, the questions were the same, but adapted to each category.
The questionnaires have at the same time quantitative and qualitative patterns. The quantitative questions have been used to establish several indicators related to spirituality and social corporate responsibility. The qualitative approach is reflected in the correlations that can be established between the independent variables in organizations: corporate social responsibility, spirituality and self-development. This research was done on online Romanian and foreign companies which operate in Romania.

Keywords: Employees, Entrepreneurs, Spirituality, Responsibility, Digital Organizations.

JEL classification: L26, M14, M21, Q01

ANALYZING CROATIAN AND HUNGARIAN VISION AND MISSION STATEMENTS IN THE AGRIBUSINESS SECTOR

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Abstract
All organizations today, whether an agribusiness company in Eastern Europe, a Fortune 500 firm, a not-for-profit institution, a university, or a small business needs to have a clear vision and mission statement. As the first step in developing an effective strategic plan, clear vision and mission statements provide a foundation for all subsequent strategic planning activities. This paper addresses current vision and mission statement theory and practice along with recent trends in the agribusiness industry, in particular: the increased involvement of large multinational firms and cooperatives in Europe, the growing trend of vertical integration within the industry, the reduction of fragmentation in production and processing, and the trend toward fewer but larger farms. Given that all strategic decisions within a firm or business need to be vision and mission driven, effective written documents are widely considered to be essential for organizational success. There is considerable research in the literature demonstrating the importance of having both a vision and mission statement. However, there is little research indicating how to tailor vision and mission statement construction to the agribusiness. The contribution of this paper is that it will lay the foundation for a more extensive content analysis of vision and mission statements in agribusinesses in Eastern Europe to determine appropriate characteristics of the two documents. The overall aim of this paper is fourfold: 1) to reveal how exemplary firms in small agribusinesses are constructing their vision and mission statements, 2) to increase awareness of the importance of having a well written vision and mission to guide strategic thought, 3) to provide a methodology for evaluating and writing effective vision and mission statements for agribusinesses, and 4) to provide direction on how to more effectively position a firm for competition in this evolving industry.

Keywords: strategic management, vision statements, mission statements, agribusiness

JEL Classification: L1, Q1

PERCEPTION OF CREATIVE CITIES IN THE FUTURE

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Abstract
The cities have a great potential for cultural resources that are a source of inspiration for their managers, citizens and visitors, but also pose many challenges. Therefore, it is important to make timely local cultural development policies that are in line with global processes and urban change. They must be inclusive, democratic, sustainable, meaningful. Local values need to be promoted in a way that is close to citizens. The wise use of the well-being of the creative potential of cities and their citizens raises economic, social and cultural benefits not only for the city under observation, but for the wider community, state or territory (for example, the European Union). Creative cities are more attractive to life because of the content they offer and / or the profit they bring to content creators and the city. The creativity and culture of a city will affect its quality of life, its richness (material and intangible), inspiration, openness to diversity and development. The problem arises in perceiving or underestimating the potential of a city and the citizens' lack of interest in the content they provide, and this problem is more pronounced in smaller cities. There is a lot of work behind the success of creative cities and it is important to understand that they do not happen by themselves.

Keywords: creative cities, citizens, culture, creativity

APPLICATION OF GEOSPATIAL TECHNOLOGIES IN THE ANALYSIS OF THE EFFECTS OF THE IPA CROSS-BORDER CO-OPERATION HUNGARY - CROATIA 2007 - 2013

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Abstract
The main goal of every Cross-border cooperation is dealing with common challenges, which will ultimately contribute to the overall development of the observed territory. By implementing projects in the cross-border area, networking among stakeholders, transfer of knowledge, education, skills development and exchange of best case practices among partners, there is a chance to develop human and other resources however, there is a noticeable absence of willingness to determine the results on all levels that the projects within cross-border programme have achieved. It is necessary to determine which direct and indirect effects the invested funds were able to ultimately achieve in the long period of time, but also their spatial dispersion. It is necessary to move towards quantification and clear distinction that invested funds create in certain time frame, in this case 2007 – 2013, while taking into account the characteristics of each area and attitudes of stakeholders after the project's formal completion, thus the period of the results' sustainability, after the 2013th.
In this paper we present the research that was conducted, from 1st of April to 31st of May 2018., with the organisations (Lead Beneficiaries and project partners) that implemented projects within the IPA Cross-Border Cooperation Hungary-Republic of Croatia, Financial Perspective 2007-2013. The area where projects were implemented is geographically located along the southwestern and southern border of Hungary and the northern and northeastern border of the Republic of Croatia. The aim of this paper is to contribute to the discussion on GIS and their contribution to decision making on the NUTS III level in the CBC area and on the possibilities they could create in the resources management of an area in the period of sustainability of project results. Also, multiplication effect created in the seven years of CBC HU – CRO 2007. - 2013. programme will be used as an example.

Key words: GIS, Management, Cross-Border Cooperation, Regional Development, European Union
JEL classification: R11, O15, N34, H34

CATEGORIES OF SHARING ECONOMY AND COLLABORATIVE CONSUMPTION

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Abstract
The sharing economy and the collaborative consumption are two similar social and economic systems that both include exchange of human and physical resources through platforms where access provision is transferred (permanently or not permanently). However, both are distinct with respect to who initiates the exchange. The sharing economy is most appropriately explained by P2P and P2B constructions and initiated through private individuals. On the contrary, collaborative consumption is described as the exchange between B2P and B2B players, but initiated by profit oriented organizations. The principle commonality for both sharing economy and collaborative consumption however is to organize a group around business opportunities utilizing community-based online services as the linchpin. Examples of both the sharing economy and the collaborative consumption include the joint creation, production, trade, distribution and consumption of goods and services by organizations and individuals. The sharing economy and collaborative consumption constitutes a variety of business structures, where exchanges between economic operators take place in different market configurations, providing over-capacity of goods and services through sharing and re-use. The purpose of the study is to present one of today's most popular economic models through its nomenclature and definitions. Examples and definitions are provided that aid in comparing and distinguishing the concept of sharing economy from the collaborative consumption. A further purpose of the study is to clearly classify demand-side platforms and explore their respective categories. Traditional so-called pipeline businesses are supply-side. For demand-side platform-based businesses, it is justified to separate service groups and to draw distinctions between the concept of sharing economy and the concept of collaborative consumption. Within demand-side platforms, two additional distinct activities are discussed: sales and renting. Sales involves the transfer of ownership, whereas in the case of renting the ownership of the product remains with the service provider. There were also differentiated demand-side platforms with marketer-provided assets and resources (have their own business inventory of assets), or providers with limited inventory to offer. These include key sectors of the collaborative consumption and sharing economy such as: transportation, accommodation, professional and personal services, online content and crowdfunding. This paper based on key sectors using international literature analyzes and systematizes sharing economy and collaborative consumption online compatible businesses. The basis of grouping was the classification by Rachel Bostman (2010), which was further

developed by the work of other authors. By analyzing the differences between the sharing economy ad collaborative consumption, a new classification system was created that is based on clear categories non overlapping categories.

Keywords: Sharing Economy, Collaborative Consumption, Categories

JEL classification: D16, L26, L81, R22

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